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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT	: Jean-Luc Bonifas		
SERIAL NO.	: 09/891,493	EXAMINER	: John P. Trimmings
FILED	: June 26, 2001	ART UNIT	: 2133
FOR	: COMMUNICATION SYSTEM, RECEIVER, AND METHOD OF ESTIMATING ERRORS CAUSED BY A CHANNEL		

APPEAL BRIEF TRANSMITTAL LETTER

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA. 22313-1450

Dear Sir:

Appellants respectfully submit three copies of a Brief For Appellants that includes an Appendix with the pending claims. The Appeal Brief is now due on August 23, 2004.

Appellants enclose a check in the amount of $330.00 covering the requisite Government Fee.

Should the Examiner deem that there are any issues which may be best resolved by telephone communication, kindly telephone Applicants undersigned representative at the number listed below.

Respectfully submitted,
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By: Steve Cha
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Date: July 26, 2004

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(Signature and Date)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Before the Board of Patent Appeals and Interferences

In re the Application

Inventor	:	**Jean-Luc Bonifas**
Application No.	:	**09/891,493**
Filed	:	**June 26, 2001**
For	:	**COMMUNICATION SYSTEM, RECEIVER, AND METHOD OF ESTIMATING ERRORS CAUSED BY A CHANNEL**

APPEAL BRIEF

On Appeal from Group Art Unit 2133

Date: July 26, 2004

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I. REAL PARTY IN INTEREST

The real party in interest is the assignee of the present application, U.S. Philips Corporation, and not the party named in the above caption.

II. RELATED APPEALS AND INTERFERENCES

With regard to identifying by number and filing date all other appeals or interferences known to Appellant which will directly effect or be directly affected by or

have a bearing on the Board's decision in this appeal, Appellant is not aware of any such appeals or interferences.

III. STATUS OF CLAIMS

Claims 1-10 have been presented for examination. All of these claims are pending, stand finally rejected, and form the subject matter of the present appeal.

IV. STATUS OF AMENDMENTS

No amendments have been filed subsequent to the Final Office Action, dated May 12, 2004.

V. SUMMARY OF THE INVENTION

A reliable, low-power, simply-configured receiver of data frames over a communication channel operates in conjunction with a transmitter to tailor, according to the amount of error in the received data stream, the redundancy level of information being transmitted to the receiver (page 3, lines 33-34; page 7, lines 17-20). Based on its observation of the nature of the received frames, the receiver calculates a minimum error rate, and a maximum error rate, for subsequent transmission to a remote device, such as the transmitter (page 3, lines 28-34). In particular, incoming frames are examined for their validity, and, if found to be invalid, are subject to a correction process. The frame is determined to be corrigible if correction was successful, or incorrigible if correction was unsuccessful (page 3, lines 2-7). Each corrected data frame is matched, e.g., bit-for-bit, with its pre-corrected counterpart to estimate a minimum error which is, for example, statistic derived by ignoring any errors that may exist in the incorrigible frames (page 3,

lines 7-16). The maximum error rate may be calculated by assuming that all bits of any incorrigible frame are erroneous (page 3, lines 17-23). In an embodiment of the invention, a receiver includes verification means for verifying data frame validity, correction means for correcting data frames, comparison means for comparing erroneous frames to their corrected counterparts, analysis means for estimating maximum and minimum error rates and transmission means for communicating the estimated rates to a remote device (page 2, lines 24-32).

VI. ISSUES

Whether claims 1-10 are unpatentable under 35 U.S.C. 103(a) as obvious over U.S. Patent No. 6,591,382 to Molloy et al. ("Molloy") in view of U.S. Patent No. 6,072,990 to Agrawal et al. ("Agrawal").

VII. GROUPING OF CLAIMS

Claims 1-10 stand or fall together.

VIII. ARGUMENT

Claim 1 recites, "A receiver . . . comprising: . . .

c) comparison means for comparing received erroneous data frames with corresponding corrected data frames for estimating a minimum error rate involved in the transmission of the received data frames,

d) analysis means for analyzing incorrigible erroneous received data frames for estimating a maximum error rate involved in the transmission of the received data frames . . ."

Steps c) and d) are discussed in the specification at page 6, lines 26-28 and at page 7, lines 4-7, respectively, and in other portions of the specification.

Advantageous aspects of the invention are also discussed in the specification (e.g., page 2, lines 14-22; page 3, lines 14-16, 25-27).

The applicant submits that the above-quoted limitations of claim 1 are not disclosed or suggested by either of the applied prior art references, and would not be featured by any embodiment that could be construed as an obvious modification of one of the references based upon the other reference.

The Molloy reference relates to trading off the overhead of a more robust error correcting code in wireless communication for signal quality. A "Packet Error test (PER)" is mentioned (col. 9, line 35) as one of three separate quality estimation methods. If the average packet error rate is observed to be too high, the more robust code is then used. Either the base station or the mobile station may monitor the signal quality for this purpose (col. 12, lines 53-55).

The Agrawal reference trades off signal quality against both transmit power level and the choice of forward error-correcting code. Agrawal observes an average word error rate (WER). When a predetermined WER range is exceeded by the observed rate, the new power level and code are calculated and transmitted by the receiver to the transmitter.

Item 3 of the previous Office Action, i.e., dated December 11, 2003, suggests that Molloy be modified in view of Agrawal to send the Molloy determined average packet error rate from the Molloy receiver to the Molloy transmitter, the transmitter then changing over to the code of appropriate robustness. Item 3 of the December 11 Office Action regards the Molloy average packet error rate to correspond to "maximum error rate" of claim 1. No reasoning for this latter proposition is advanced. Item 3 then asks us to imagine that the "minimum error rate" of claim 1 is likewise featured in Molloy/Agrawal. Certain parts of the patent references received from the Patent Office are marked up or highlighted to suggest that the "minimum error rate" is disclosed, but item 3 does not go so far as to actually voice that proposition. A review of those highlighted portions and of the passages cited in item 3 fails to unearth any disclosure or suggestion of a "minimum error rate" such as that of claim 1.

Moreover, there is no suggestion in either reference of the "comparing" of step c) of claim 1 of the present invention, nor of the "analyzing" of step d) of claim 1 of the present invention. Nor would it have been obvious for Molloy/Agrawal to feature these claim 1 limitations. The only motivation cited by item 3 is to relocate decision-making at the transmitter, which might relate to the joining of Molloy and Agrawal, but does not even begin to suggest the claim 1 limitations discussed in this paragraph.

In particular, the applied combination fails to disclose, suggest or feature, "A receiver . . . comprising: . . .

c) comparison means for comparing received erroneous data frames with corresponding corrected data frames for estimating a minimum error rate involved in the transmission of the received data frames,

d) analysis means for analyzing incorrigible erroneous received data frames for estimating a maximum error rate involved in the transmission of the received data frames . . ."

Item 1 of the final Office Action refers to lines 1-24 of column 9 of Molloy, presumably to point out that Molloy discloses that a data logger 46 in the mobile station 20 "keeps track of bit error rates (BER)" (col. 9, lines 7-8). From this disclosure, the Office Action concludes, in item 1, that the comparison means of claim 1 of the present invention is disclosed or suggested.

At the very least however, the fact that a data logger in a mobile terminal tracks BERs, e.g., by deriving the BERs from the detected signal power and/or other measured parameters, does not even begin to show or suggest the comparison means of the present invention as recited in claim 1. In particular and by way of example, there is no disclosure or suggestion of "comparing . . . erroneous data frames with . . . corrected data frames . . ." Likewise, there is no disclosure or suggestion of "comparing . . . for estimating a minimum error rate." Referring also to step e) of claim 1, there is no disclosure or suggestion of "transmitting information relating to said minimum and maximum error rates . . ."

Turning to page 3 of the final Office Action, at the top, citation is made to Molloy lines 36-38 of column 18, i.e., claim 44, which, again, does not even begin to show the comparison means of the present invention as recited in claim 1. In particular and by way of example, there is no disclosure or suggestion of "comparing . . . erroneous data frames with . . . corrected data frames . . ."

In addition, the final Office Action, consistent with the previous Office Action of December 11, does not even hazard a suggestion as to what it deems to be the "minimum error rate" of the present invention as recited in claim 1.

As to step c) of the applicant's claim 1, in the first full paragraph on page 3 for item 1 of the final Office Action, the Office Action suggests that the Molloy conversion of the BER to the PER at line 19 of column 11 of Molloy corresponds to the "analyzing incorrigible erroneous received data frames" of the analysis means of claim 1 of the present invention.

The cited Molloy BER-to-PER conversion, however, is entirely based upon incoming packets that have been determined to be not in error (col. 9, line 34: "when a packet is not in error"; col. 11, line 26: "Rationale for use only with packets not in error"; col. 9, lines 56-58). A Molloy packet that has been determined to be not in error would not have been subjected to error correction, at least because there is no error to correct. Accordingly, Molloy fails to disclose or suggest, ". . . analyzing incorrigible erroneous received data frames . . . "

Notably, the passage cited in the Office Action does not even come close to relating to the analysis means of the present invention as recited in claim 1. The cited passage pertains to Molloy BER-to-PER conversion and describes an embodiment as follows. While arriving packets are not in error, a Signal-to-Noise-and-Interference-Ratio (SINR) is observed by the mobile station 20 (col. 9, lines 33-34). The observed SINR is converted to a packet error rate (PER), either directly from a table (col. 11, lines 13-17), or indirectly by an SINR-to-BER conversion followed by application of the above-mentioned equation at line 19 of column 11 in Molloy (col. 11, lines 18-19). As

mentioned above, this conversion process relates exclusively to packets that have been determined to be not in error.

To the best understanding of the applicant, the first full paragraph of page 3 of the final Office Action may be citing the "maximum error rate" at Molloy lines 56-67 of column 9 and/or lines 1-20 of column 10. Although these citations relate to when a packet is determined to be in error, it is unclear what is deemed to be the "maximum error rate" of the analysis means of the present invention. Moreover, there is still no disclosure or suggestion of "analyzing incorrigible . . . frames."

Agrawal does not even come close to making up for the deficiencies in Molloy.

For at least all of the above reasons, the applied combination fails to render obvious the invention as recited in claim 1. Reconsideration and withdrawal of the rejection is respectfully requested.

As to claims 4, 7 and 10, they each recite the same above quoted, underlined claim language, except that some of the claims relocate the word "received" in step d) to immediately follow the word "analyzing." Accordingly, each of claims 4, 7 and 10 is deemed to be patentable over the applied references for at least the same reasons set forth above with regard to claim 1.

As to the remaining claims, each depends from a base claim which has been shown to be patentable and is likewise deemed to be patentable at least due to its dependency.

IX. CONCLUSION

In view of the above analysis, it is respectfully submitted that the referenced teachings, whether taken individually or in combination, fail to anticipate or render obvious the subject matter of any of the present claims. Therefore, reversal of all outstanding grounds of rejection is respectfully solicited.

Respectfully submitted,

Russell Gross
Registration No. 40,007

Date: July 26, 2004

By: Steve Cha
Attorney for Applicant
Registration No. 44,069

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Steve Cha, Reg. No. 44,069
(Name of Registered Rep.)

(Signature and Date)

X. APPENDIX: THE CLAIMS ON APPEAL

1. A receiver for receiving and processing data frames transmitted over a transmission channel, comprising: a) verification means for verifying the validity of data frames received, for detecting and identifying non-erroneous and erroneous data frames among the data frames received, said erroneous data frames being of a corrigible or incorrigible nature, b) correction means for correcting errors, which means act on corrigible erroneous received data frames so as to generate corrected data frames, characterized in that it comprises: c) comparison means for comparing received erroneous data frames with corresponding corrected data frames for estimating a minimum error rate involved in the transmission of the received data frames, d) analysis means for analyzing incorrigible erroneous received data frames for estimating a maximum error rate involved in the transmission of the received data frames, e) transmission means for transmitting information relating to said minimum and maximum error rates to a remote device.

2. A receiver as claimed in claim 1, characterized in that the comparison means comprise a binary bit-by-bit operator of the "EXCLUSIVE OR" type applied between the received erroneous data frames and the corresponding corrected data frames, so as to generate an output word indicative of the number of corrected bits contained in said corrected data frames.

3. A receiver as claimed in claim 1, characterized in that the analysis means for analyzing the received incorrigible erroneous data frames comprise: a) a summation device for indicating the number of bits contained in said incorrigible data frames, b) an adder device for adding the number of corrected bits contained in the corrected data frames to said number of bits contained in the incorrigible data frames.

4. A communication system for transmitting data frames between a transmitter and a receiver via a communication channel, said transmitter comprising protection means for protecting transmitted frames, while said receiver comprises: a) verification means for verifying the validity of data frames received, for detecting and identifying non-erroneous and erroneous data frames among the data frames received, said erroneous data frames being of a corrigible or incorrigible nature, b) correction means for correcting errors, which means act on corrigible erroneous received data frames so as to generate corrected data frames, characterized in that the receiver comprises: c) comparison means for comparing received erroneous data frames with corresponding corrected data frames for estimating a minimum error rate involved in the transmission of the received data frames, d) analysis means for analyzing incorrigible erroneous received data frames for estimating a maximum error rate involved in the transmission of the received data frames, e) transmission means for transmitting information relating to said minimum and maximum error rates to a remote device.

5. A communication system as claimed in claim 4, characterized in that the transmitter comprises adaptation means for adapting the protection of the frames transmitted to the receiver to said minimum and maximum error rates.

6. A telephone equipment comprising a receiver as claimed in claim 1.

7. A method of estimating errors at the level of a receiver for estimating the errors on a transmission channel, which method comprises: a) a verification step for verifying the validity of the received data frames so as to detect and identify the erroneous data frames received and the non-erroneous data frames received, b) an error correction step carried out on those received erroneous data frames which can be corrected so as to

generate corrected data frames, characterized in that it comprises the following steps: c) a comparison step for comparing received erroneous data frames with corresponding corrected data frames so as to estimate a minimum error rate involved in the transmission of the received data frames, d) an analysis step for analyzing received incorrigible erroneous data frames so as to estimate a maximum error rate involved in the transmission of the received data frames.

8. A method as claimed in claim 7, characterized in that said comparison step comprises a binary bit-by-bit operation of the (EXCLUSIVE OR) type applied between the received erroneous data frames and the corresponding corrected data frames so as to generate an output word indicative of the number of corrected bits contained in said frames of corrected data.

9. A method as claimed in claim 7, characterized in that the analysis step for analyzing the received incorrigible erroneous data frames comprises: a) a summation sub-step indicating the number of bits contained in said incorrigible data frames, b) an addition sub-step for adding the number of corrected bits contained in the corrected data frames to the number of bits contained in the incorrigible data frames.

10. An error protection method for data frames transmitted between a transmitter and a receiver via a communication channel, said transmitter comprising a protection step for the transmitted frames, while said receiver comprises: a) a verification step for verifying the validity of the received data frames so as to detect and identify the received erroneous data frames and the received non-erroneous data frames, b) an error correction step carried out on those received erroneous data frames which can be corrected so as to generate corrected data frames, characterized in that: c) the receiver comprises a comparison step for comparing received erroneous data frames with corresponding

corrected data frames so as to estimate a minimum error rate involved in the transmission of the received data frames, d) the receiver comprises an analysis step for analyzing received incorrigible erroneous data frames so as to estimate a maximum error rate involved in the transmission of the received data frames, e) the receiver comprises a transmission step for transmitting said minimum and maximum error rates to said transmitter, f) the transmitter comprises an adaptation step in which the protection of the frames transmitted to the receiver is adapted to said minimum and maximum error rates.